



METROPOLITAN  
TRANSPORTATION  
COMMISSION

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Executive Director

*William F. Hein*  
Deputy Executive Director

**BAY BRIDGE DESIGN TASK FORCE  
ENGINEERING AND DESIGN  
ADVISORY PANEL  
Monday, March 2, 1998  
9 a.m.**

**Joseph P. Bort MetroCenter Auditorium  
101 Eighth Street  
Oakland, California 94607**

**Chairperson:** Joseph Nicoletti  
**Vice Chair:** John Kriken  
**Staff Liaison:** Steve Heminger

**FINAL AGENDA**

1. Welcome and introductions - Joseph Nicoletti, Chair, and John Kriken, Vice Chair
2. Summary of events since last EDAP meeting - Steve Heminger, MTC \*
3. Introduction of joint venture design team, T.Y. Lin International and Moffatt & Nichol Engineers - Brian Maroney and Denis Mulligan, Caltrans
4. Presentation of alternative cable-stayed and self-anchored suspension span designs - Allen Ely, T.Y. Lin International
5. Other Business/Public Comment

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\* Attachment sent to members, key staff, and others as appropriate. Copies available at meeting.

**Public Comment:** The public is encouraged to comment on agenda items at committee meetings by completing a request-to-speak card (available from staff) and passing it to the committee secretary or chairperson. Public comment may be limited by any of the procedures set forth in Section 3.09 of MTC's Procedures Manual (Resolution No. 1058, Revised) if, in the chair's judgment, it is necessary to maintain the orderly flow of business.

**Record of Meeting:** MTC meetings are tape recorded. Copies of recordings are available at nominal charge, or recordings may be listened to at MTC offices by appointment.

**Sign Language Interpreter or Reader:** If requested three (3) working days in advance, sign language interpreter or reader will be provided; for information on getting written materials in alternate formats call 510/464-7787.

**Transit Access to MTC:** BART to Lake Merritt Station. AC Transit buses: #11 from Piedmont or Montclair; #59A from Montclair; #62 from East or West Oakland; #35X from Alameda; #36X from Hayward.

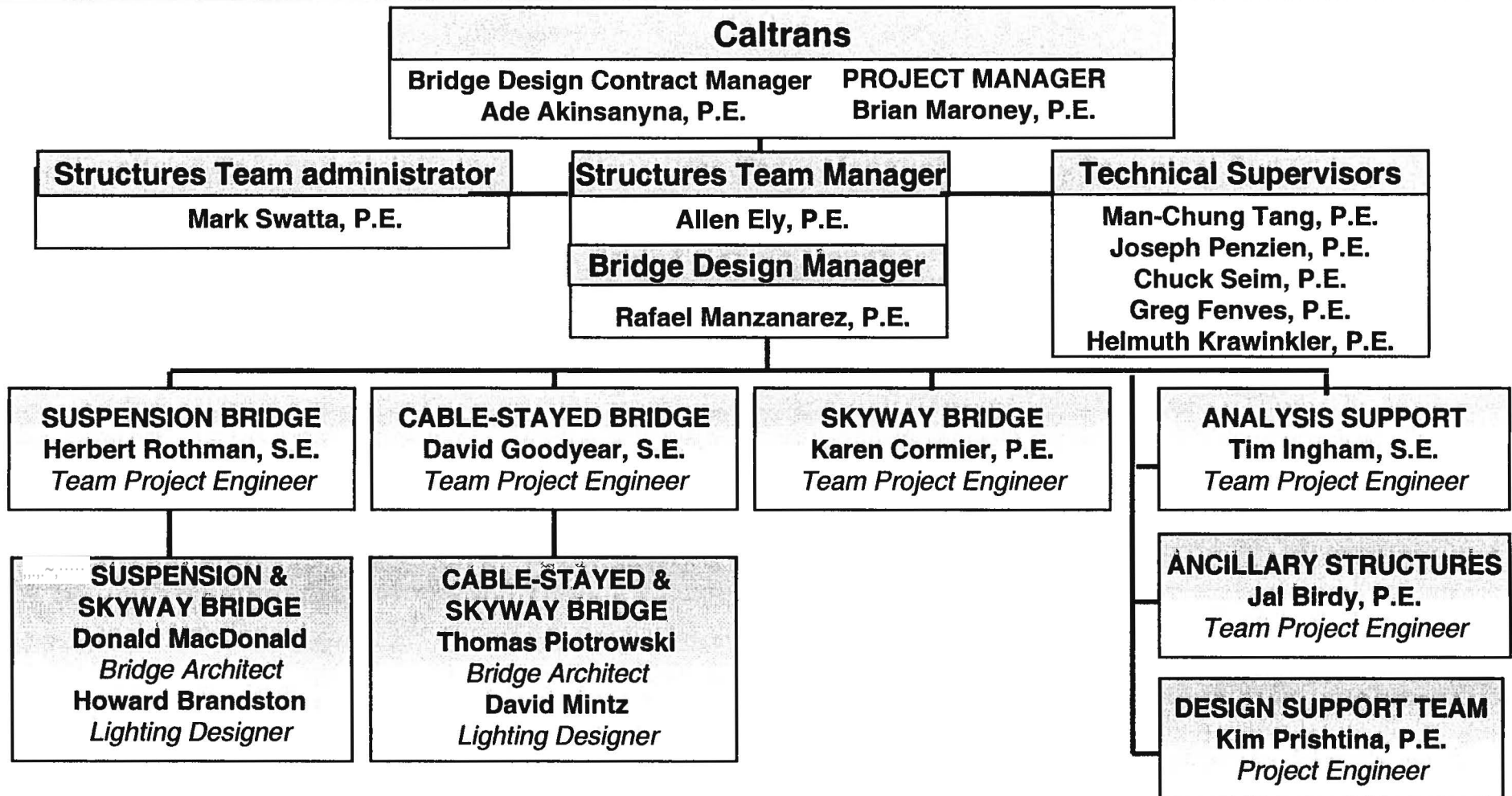
**Parking at MTC:** Metered parking is available on the street. No public parking is provided.



## San Francisco - Oakland Bay Bridge East Span Seismic Safety Project



### Organization Chart, Phase I



**Bay Bridge Design Task Force  
Engineering and Design Advisory Panel  
March 2, 1998 - 9:00 a.m.**

**Public Sign-in Sheet**

NAME	REPRESENTING	ADDRESS
1. Andrew CARPENTIER 1	Oakland Landmarks Bd.	
2. Gregory Burkusunn AIA 901 MARKET STREET, SF CA 94103		
3. T.Y. LIN		
4. Marine Carlson	Mayor Harris	
5. Ade Akinsanya	Caltrans	
6. Moe Amiri	CALTRANS	
~7. Mark Swatta	Moffatt Nichol Eng'rs	
8. Howard M. BRANDSTON	HMB & P.	
9. KEN JONG	FBC & ID	
10. JOYCE CHEN	SING TAO DAILY	



**Bay Bridge Design Task Force  
Engineering and Design Advisory Panel  
March 2, 1998 - 9:00 a.m.**

**Public Sign-in Sheet**

NAME	REPRESENTING	ADDRESS
1. Rick Brunden	CAUTANS	SAC
2. Gerry Houlahan	Moffatt & Nadel	SAC
3. AARON BETSKY	SFMOMA	
4. George J. Holt	Advisory Board. OAKLAND LANDMARKS	
5. Kay ALWILSON	PAM 101 THE EMBARCADERO-210 SF, CA 94105	415 989-1446, Ex. 12
6. R G GRAY	Bay Bridge Coalition for Westcon	1001 Merced St Berkeley 94707
7. Jason Meggs	Bike the Bridge! Coalition 510/273-9288	Box 15071 Berkeley, CA 94701
8. Rick WIEDERHORN	PORT OF OAKLAND	530 WATER ST, OAK.
9. John Young	S.F. DTS	170 OTIS ST
10. JOSEPH CARROLL	S.F. BICYCLE COALITION	4034 MILK WAY #3 OAKLAND, CA 94609



**Bay Bridge Design Task Force  
Engineering and Design Advisory Panel  
March 2, 1998 - 9:00 a.m.**

**Public Sign-in Sheet**

NAME	REPRESENTING	ADDRESS
1. <u>Derek Shuman</u>	<u>Bicycle Friendly Berkeley</u>	<u>1442A Walnut St Berkeley, CA 94704</u>
2. <u>David Cottle</u>	<u>MIG, Inc</u>	<u>800 Hearst Ave. Berk 9471</u>
3. <u>Reid Buell</u>	<u>Caltrans</u>	<u>5900 Folsom Blvd Sacramento, CA 95819</u>
4. <u>Victoria Eisen</u>	<u>ABAC</u>	<u>PO Box 2050 Oakland 94607</u>
5.		
6.		
7.		
8.		
9.		
10.		

**PRESS**  
**Bay Bridge Design Task Force**  
**Engineering and Design Advisory Panel**  
March 2, 1998 - 9:00 a.m.

NAME

REPRESENTING

1. Alex Bernum

S.F. Chronicle

2.

3.

4.

5.

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7.

8.

9.

10.



**MIDDLEBROOK + LOUIE**  
Structural Engineers

71 Stevenson Street  
Suite 2100  
San Francisco, CA 94105  
415.546.4900  
Fax 415.974.3680  
email mlbox@ix.netcom.com

Jason J.C. Louie, S.E.  
Ronald F. Middlebrook, S.E.  
Hardip S. Pannu, S.E.  
Robert D. McCartney, S.E.

August 31, 1997

Joseph Nicoletti  
Chairman of the ED Advisory Panel  
URS/ John A. Blume and Associates  
100 California Str., Suite 500  
San Francisco, CA 94111

Subject: New East Crossing of the San Francisco - Oakland Bay Bridge

Dear Joseph:

I am sending you some new information that could be useful for the final decision for the new East Span of the Bay Bridge.

Last week we received new data from AISC related with steel bridges. According this information the structural steel quantity for 350 ft. spans is 61psf and for 394 ft - 71 psf. These data correspond very well with my own design-build experience for steel bridges with orthotropic decks, including two bridges with 525 ft. and 535 ft. central spans built with 86 psf and 90 psf.

With these data it is relatively easy to make a more correct estimate of the cost of steel bridges for the East Span. Caltrans did not provide the basis steel/ or concrete quantities and unit costs for their total cost estimates during our EDAP meetings and workshop.

I am sending you the seven pages received from AISC to be used for cost estimate for the new East Span of Bay Bridge. It is my personal opinion that for this particular project, at this location, soil conditions and high level of seismic activities a steel bridge will be a stronger and a less expensive solution than a concrete bridge even for the so called "causeway" section. There is no doubt that for the long cable supported span a steel bridge will be the better solution.

The second information is a new idea for the double deck vs single deck issue that came out during the discussions at the Bay Bridge Coalition. The proposed solution is the double deck bridge remaining for the West span and the tunnel at Yerba Buena Island, to continue along the YBI and the long span structure east of the island and to split to two separated road ways (single decks) after the long span. This is the best idea that we have seen from the beginning of the year.

They are several very important advantages if this new proposal will be accepted:

- provides the simplest transition between the double-deck at the West Span and the



single decks for the rest of the bridge after the long span at the beginning of the East Crossing;

- provides good visual continuity between the two parts of the bridge;
- provides a more compact, less expensive structural design for the long span;
- provides significantly better opportunities to design a well proportioned beautiful tower for the cable supported long span of the bridge;
- avoids the complicated splitting at the YBI from double to single decks with the related saving of island terrain and environmental preservation;
- save cost for the double-deck long span (7 to 12 % of the cost for single decks)

The prove of the viability of this idea is that even the hardest supporters of the single decks, as Jeffrey Heller are accepting it as the best possible solution. No other alternative provides a satisfactory continuity between the remaining West Span and the proposed East Span - one of the important requirements in the adopted Design Criteria.

I would like this proposed new solution to be transmitted to MTC and Caltrans in order to be included in the final design program and criteria. I think that this idea is providing the right solutions for many issues that the Engineering and Design Advisory Panel was not satisfied during our sessions.

I would recommend this letter to be send to all the members of EDAP.

If you have any questions please contact me at (415) 546 - 4900.

Sincerely:

*Roumen Mladjov.*

Roumen Mladjov, S.E.

cc: William F. Hein, MTC  
Robert W. Pyle, AISC

(g) If the San Diego Association of Governments imposes tolls pursuant to subdivision (a), it shall reimburse the department for costs incurred by the department in operating the bridge, collecting tolls, and performing other related services. The association and the department shall enter into an agreement which provides for the full reimbursement of the department for all operating costs.

(h) The San Diego Association of Governments, not later than June 30, 1995, and not later than June 30 of each year thereafter, shall prepare an audit, to be funded solely with toll revenues, of all expenditures and revenue collected pursuant to this section. The first audit shall include all expenditures and revenue collected prior to January 1, 1995. A report of the audit shall be published and made available to the members of the San Diego Association of Governments, and to any member of the public who submits a written request therefor within 30 days upon receipt of the request.

SEC. 9. Section 30796.9 is added to the Streets and Highways Code, to read:

30796.9. (a) The San Diego Association of Governments shall deposit thirty-three million dollars (\$33,000,000) in the Toll Bridge Seismic Retrofit Account in the State Transportation Fund.

(b) On or before January 1, 1998, the San Diego Association of Governments shall submit to the Legislature and the department a financial plan for the transfer of thirty-three million dollars (\$33,000,000) on or before July 1, 2000, to the Toll Bridge Seismic Retrofit Account in the State Transportation Fund.

(c) Maintenance of the San Diego-Coronado Bridge shall be funded by the state pursuant to Section 188.4.

SEC. 10. Chapter 4.5 (commencing with Section 31000) is added to Division 17 of the Streets and Highways Code, to read:

#### CHAPTER 4.5. SEISMIC RETROFIT SURCHARGE

31000. The following definitions apply for purposes of this chapter:

(a) "Account" means the Toll Bridge Seismic Retrofit Account created pursuant to Section 188.10.

(b) "Amenities" means any of the following:

(1) A cable suspension bridge.

(2) A bicycle facility.

(3) A transbay terminal.

(c) "Authority" means the Bay Area Toll Authority.

(d) "Bay area bridges" means the state-owned toll bridges in the region within the area of the jurisdiction of the Metropolitan Transportation Commission.

(e) "Department" means the Department of Transportation.

(f) "Seismic retrofit" means all work completed by the department on the bay area bridges relating to the planning, design,

and construction of improvements to, or replacement of, those bridges for the purpose of withstanding seismic forces, including, but not limited to, any environmental or traffic mitigation necessary for that work.

(g) "Surcharge" means the seismic retrofit surcharge imposed pursuant to Section 31010.

31010. (a) There is hereby imposed a seismic retrofit surcharge equal to one dollar (\$1) per vehicle for passage on the bay area bridges, except for vehicles that are authorized toll-free passage on these bridges.

(b) This section shall remain in effect only until the date that the Secretary of State receives the notice required under subdivision (b) of Section 31050, or until January 1, 2008, whichever occurs first, and as of that date is repealed.

31015. (a) Revenues generated from the surcharge shall not exceed nine hundred seven million dollars (\$907,000,000), unless any of the following occurs:

(1) After completing 30 percent of the design, and after completion of a cost estimate by the department, the authority selects a design that costs more than the cost of a single tower cable suspension bridge selected by the department.

(2) The authority requests funding for the replacement or relocation of the transbay bus terminal in the City and County of San Francisco.

(3) The authority requests funding for a bicycle or pedestrian access that is to be added to the new bridge.

(b) If the authority does any of the things listed in paragraphs (1) to (3), inclusive, of subdivision (a), the local share of the project costs shall be increased by an amount equal to any additional costs that are incurred as a result of the authority's decision.

(c) The department shall include the amenities requested by the authority only if sufficient funds generated by the seismic retrofit surcharge are made available to fully pay for those amenities.

31020. Revenue generated from the surcharge shall be deposited in the account.

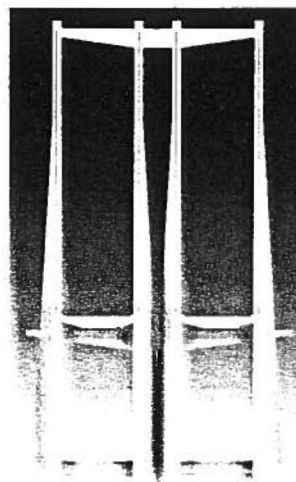
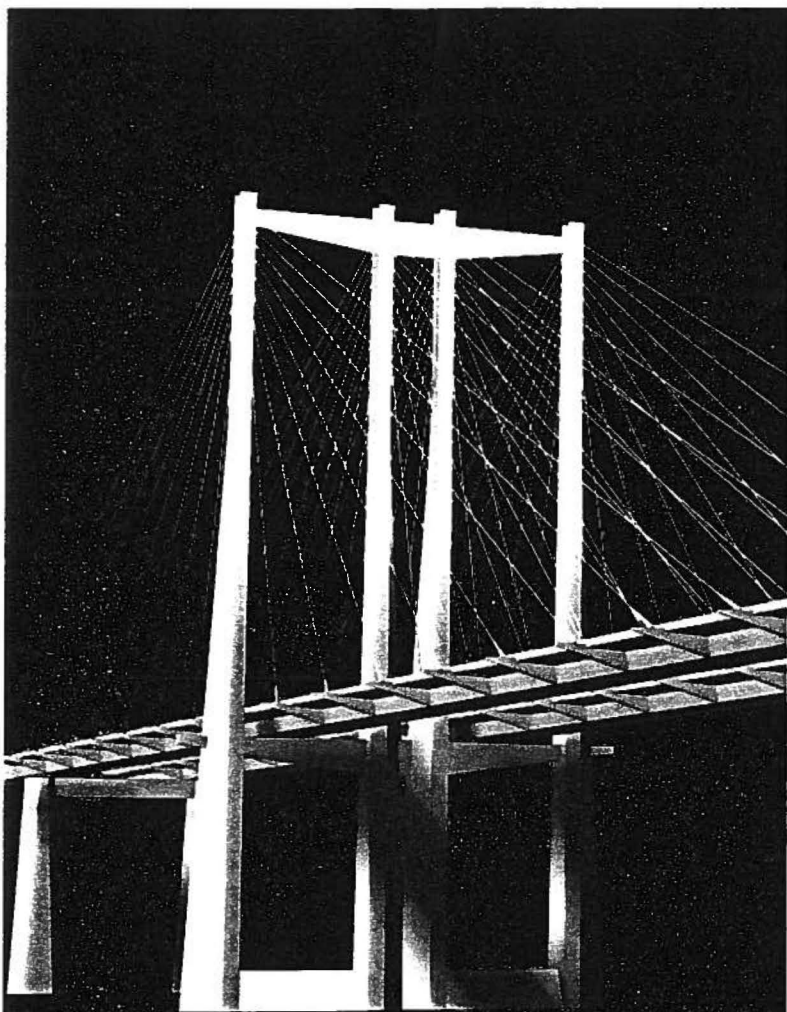
31050. (a) The department shall determine the date when all of the following have occurred:

(1) Sufficient funds, not exceeding nine hundred seven million dollars (\$907,000,000), have been generated for the completion of seismic retrofit and the replacement of the San Francisco-Oakland Bay Bridge.

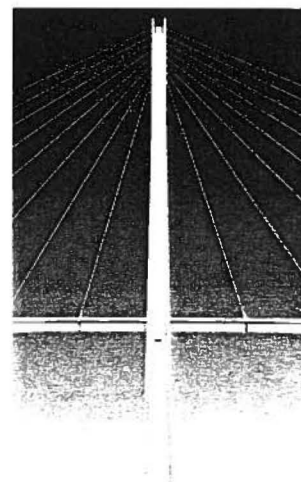
(2) Sufficient funds have been generated to pay for any costs added under Section 31015.

(b) The department shall notify the Secretary of State of the date determined under subdivision (a), immediately upon making that determination.

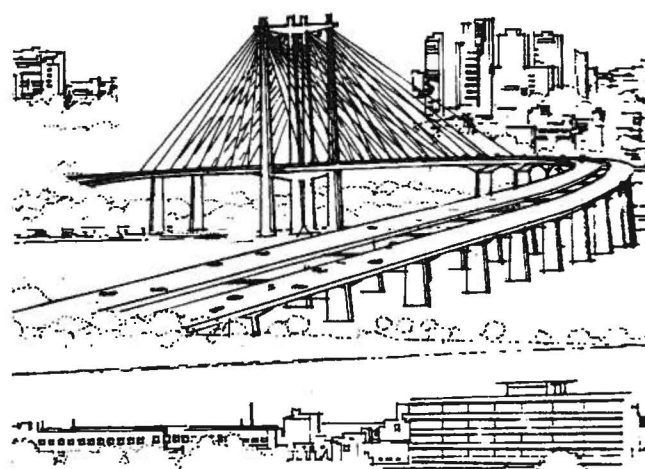




TRANSVERSE ELEV.



LONGITUDINAL ELEV.



## NEW EAST BAY SEGMENT OF THE SAN FRANCISCO OAKLAND BAY BRIDGE

Cable Arrangement: Semi-fan.

No. of cables: 8 on each of two sides, 4 vertical planes

Scheme A is a twin tower option with cross bracing at the top of the towers and below the deck.

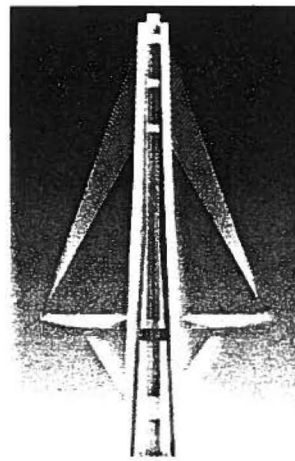
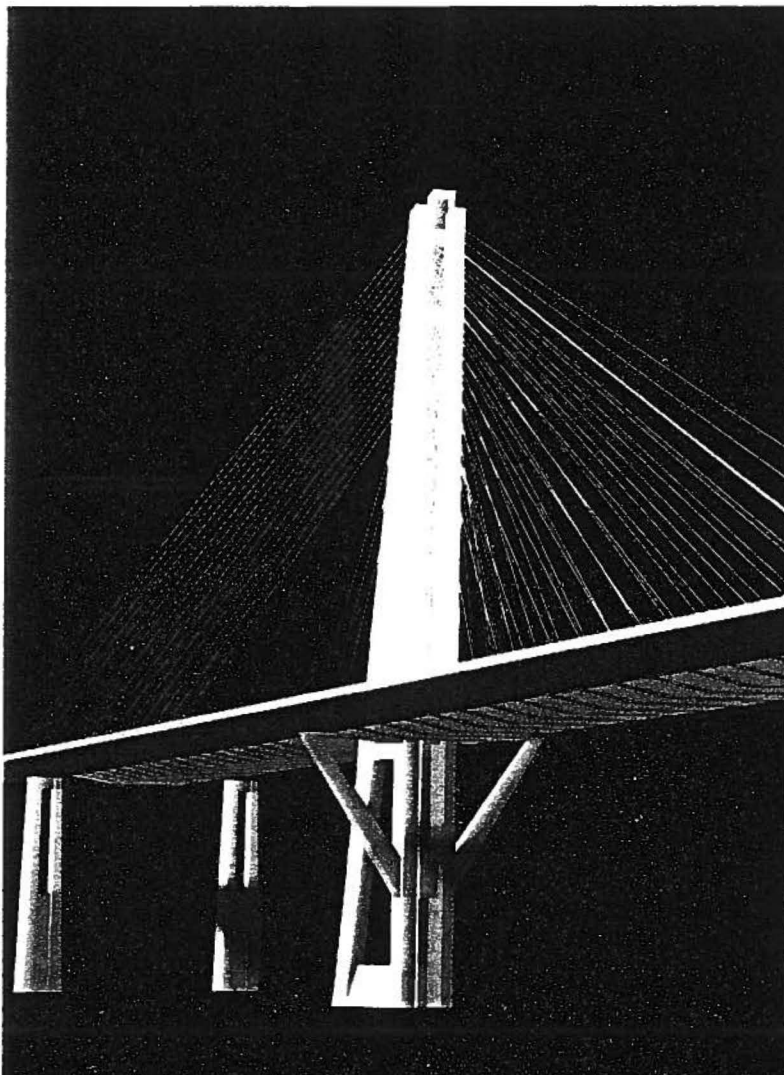
Scheme A is a traditional twin tower scheme. The form of the towers evokes images of the west span and the Golden Gate.

It is comprised of twin two-legged towers merging into a three-legged form at the base. The scheme exhibits a double symmetry with four vertical planes of cable. The twin towers are joined by cross beams at the top of the tower and below the decks which serve to unify the composition of the design.

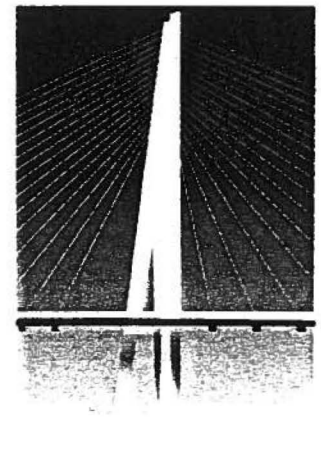
SCHEME A



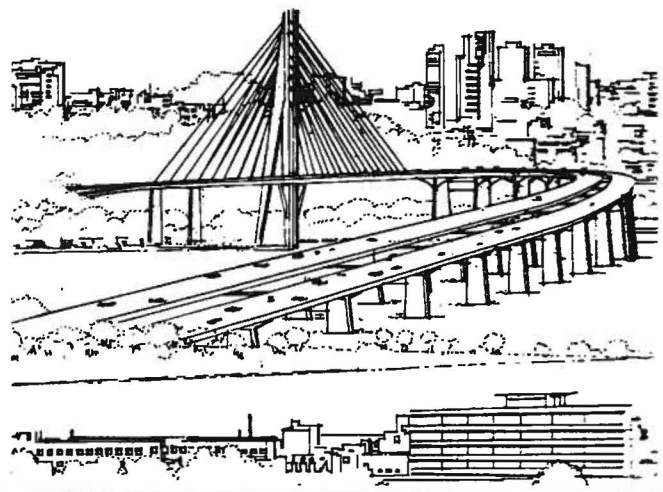




TRANSVERSE ELEV.



LONGITUDINAL ELEV.



## NEW EAST BAY SEGMENT OF THE SAN FRANCISCO OAKLAND BAY BRIDGE

Cable Arrangement: Semi-fan.

No. of cables: 16 cables to the inside of each deck on the front span; 16 cables to the outside of each deck for rear span.

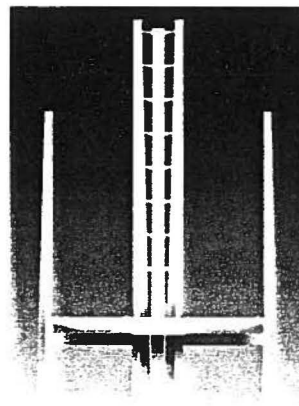
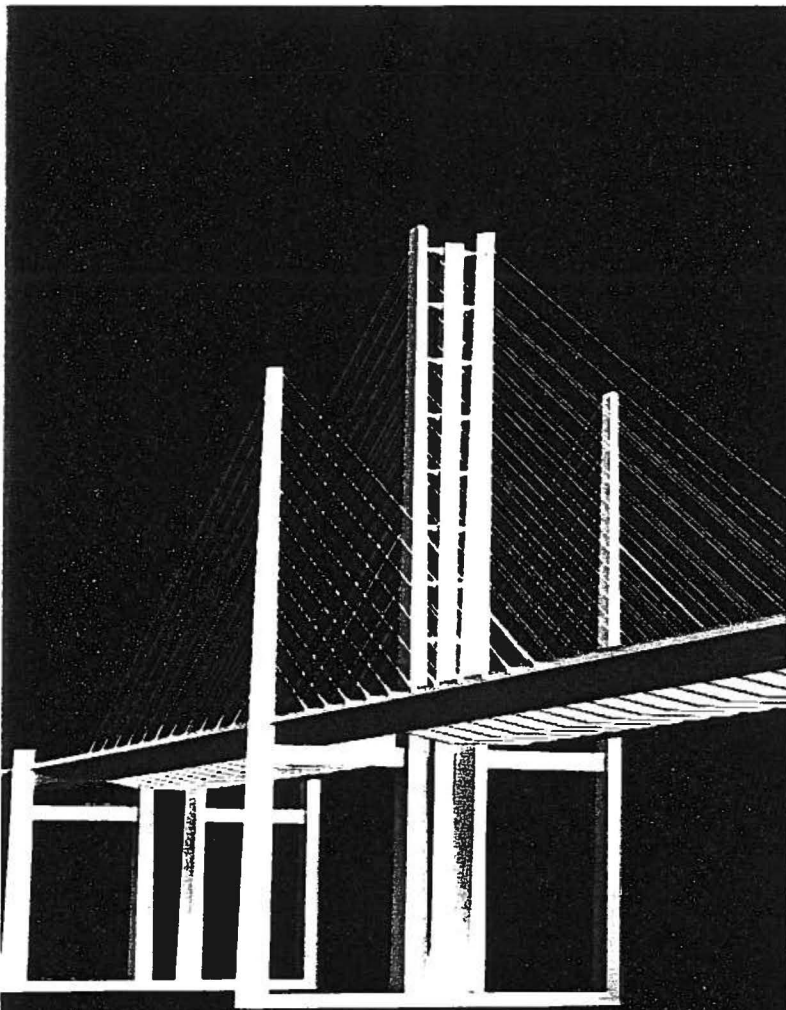
This scheme has a shiplike quality, evoking a vessel with sail.

It is comprised of a single pylon on four (4) feet, with an asymmetrical cable arrangement (two inside planes of cable at front span; two outside planes of cable at back span). This asymmetry reinforces the different end conditions: land/tunnel vs. open bay.

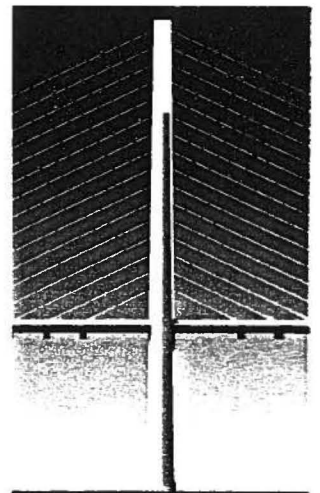
The single pylon contains an illuminated shaft which serves as a beacon in the landscape.

SCHEME B

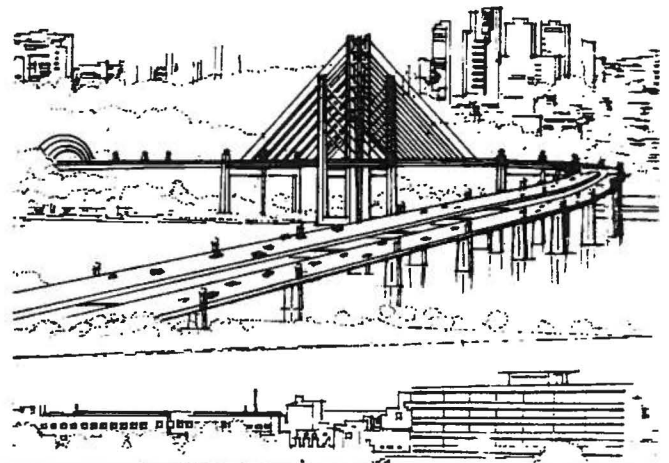




TRANSVERSE ELEV.



LONGITUDINAL ELEV.



## NEW EAST BAY SEGMENT OF THE SAN FRANCISCO OAKLAND BAY BRIDGE

Cable Arrangement: Harp

No. of cables: Outside (lower) pylons have 11 cables on each side.  
Inside (high) pylons have 16 cables on each side.

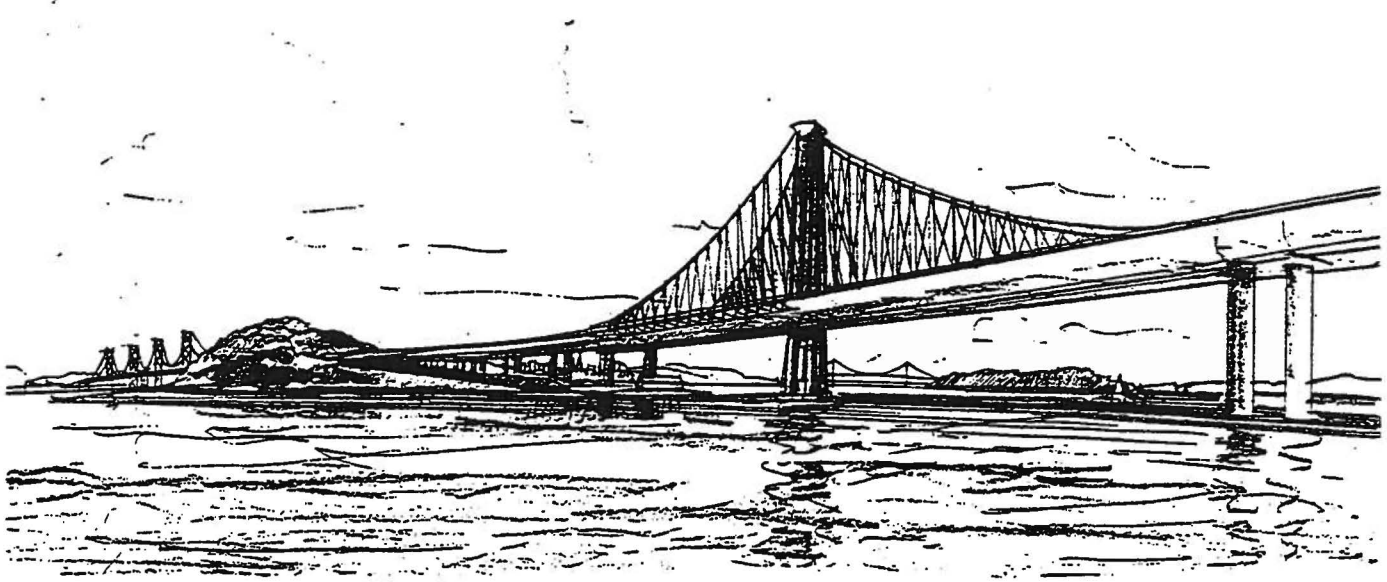
This scheme creates a major portal effect.

It is comprised of a three-leg tower: a central high pylon and two lower, exterior pylons. This scheme is completely symmetrical, with four planes of parallel cable. The central pylon contains an illuminated shaft, which serves as a beacon in the landscape. Steel struts connect the central pylon, for inspection purpose.

SCHEME C



## SCHEME 1 - SINGLE TOWER



Scheme 1 is the most contemporary and visionary design. It consists of a single tower supporting both decks. The main cables are arranged asymmetrically. This design creates a “portal” to Oakland using the cables rather than the tower.

The tower consists of 4 cylindrical or prismatic tubes arranged in a square. Below the deck level, the tubes splay out to form a wide and sturdy base. Above the deck, the tubes slope gently towards each other, exaggerating the perspective. At the top, the tower is capped with an expressive saddle housing.

The decks are supported by two cables. On the island side, the cables are spread to the outside of the decks, while on the Oakland side, they go between the decks. The suspenders are arranged in a zigzag format. The tower is in proportion to the mass of the two large roadway deck surfaces.

Of all the alternatives, this design has the strongest “personality”. It is contextual in that it picks up the catenary shape of the other Bay Area suspension bridges, and at the same time unique in its expression and shape. It would be a very recognizable landmark, like the San Francisco Transamerica Pyramid or the Paris Eiffel Tower.



## SCHEME 3 - TRIPLE TOWER



Scheme 3 combines some of the uniqueness of Scheme 1 with the more traditional approach of Scheme 4 (see below). The beauty lies in its timeless simplicity. Here, the suspension bridge is supported by a three-legged tower, with one leg between the decks and one on each side. The main cables are arranged symmetrically, and have vertical suspenders.

The tower legs are tapered towards the top, exaggerating the perspective and generally following the forces that are exerted on them. They are connected by massive transverse members below the roadways and sit on a single foundation. At the top, the towers are crowned with an expressive saddle housing. There are no horizontal connectors between the tops of the towers.

The decks are held up by vertical suspenders which connect the catenary cables to girders that support the decks at appr. 50-foot intervals. The advantage of vertical suspenders is that no matter from which angle one views the bridge, they are always parallel and thus don't create visual clutter.

This design stands out for its timeless simplicity. It fits the context of the other suspension bridges, while at the same time re-interpreting the traditional portal. From a distance, it looks like a traditional suspension bridge, without the clutter of the two closely-spaced middle tower legs of the double-portal scheme (Scheme 4). Like Scheme 1, Scheme 3 would also be a recognizable landmark, and could become an icon associated with Oakland.

## SCHEME 4 - DOUBLE PORTAL



Scheme 4 is the most traditional. Each deck is supported by a portal similar in size and proportions to the west Bay Bridge. Because of their proximity, the legs between the decks are merged below the roadway level. The portals are tapered (like the west Bay bridge), so that the suspenders can be vertical. The advantage of vertical suspenders is that no matter from which angle one views the bridge, the wires are always parallel and thus don't create visual clutter. The suspenders support the deck at apprx. 50-foot intervals.

The cable saddles are treated differently in the two alternatives (see below).

This design fits the context of the other suspension bridges. The new signature structure would be very similar to the existing bridges and other typical suspension structures. It is a solid, albeit dull contender.



METROPOLITAN  
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COMMISSION

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February 23, 1998

To: Members, Engineering and Design Advisory Panel

Fr: Steve Heminger

Re: Early viewing of alternative bridge designs

We have arranged with the Bay Bridge design team to provide you an advance viewing of the alternative bridge designs and models between 8 and 9 a.m. on Monday, March 2, 1998, prior to the EDAP meeting.

If you plan to take advantage of this opportunity, please arrive early. For your information, CafeMetro in the MetroCenter opens at 7:30 a.m.

**James P. Spering, Chair**  
Solano County and Cities

**James T. Beall Jr., Vice Chair**  
Santa Clara County

**Keith Axtell**  
U.S. Department of Housing  
and Urban Development

**Jane Baker**  
Cities of San Mateo County

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Deputy Executive Director





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*Memorandum*

TO: Engineering and Design Advisory Panel

DATE: February 23, 1998

FR: Steve Heminger

RE: Summary of events since last EDAP meeting

Since EDAP last met in June 1997, a number of events have transpired that will affect your work as we proceed into the 30% design phase for the cable-stayed and self-anchored suspension span alternatives on the new eastern span of the Bay Bridge:

- In July 1997, MTC approved a set of 17 finance, design, and planning recommendations for the new eastern span, based largely on the analysis and advice of EDAP. These recommendations are contained in Attachment 1.
- In August 1997, Governor Wilson signed into law SB 60 (Kopp), which established a \$1 surcharge on the Bay Area's state-owned toll bridges -- beginning January 1, 1998 and lasting for eight years -- to help pay the cost of retrofitting the toll bridges. The law also authorized MTC to extend that surcharge for up to two additional years to fund up to three "amenities" for the new eastern span: a cable-supported main span, relocation or replacement of the Transbay Transit Terminal, or a bicycle/pedestrian lane on the new span. The relevant language from the new statute is contained in Attachment 2.
- In January 1998, Caltrans awarded a contract to the joint venture team of T.Y. Lin International and Moffatt & Nichol Engineers to perform the 30% design work on the two cable-supported alternatives recommended by MTC and EDAP. Due to approximately two months of delay in awarding the design contract, the anticipated completion date for the 30% designs is now May 1998, with final action by MTC on bridge design and the toll surcharge extension scheduled for June 1998. A revised schedule for the 30% design process is contained in Attachment 3.
- Three members of EDAP were also members of the winning joint venture team, so their names have been deleted from the revised roster of EDAP which is contained in Attachment 4.

PLANNING AND DESIGN RECOMMENDATIONS  
BAY BRIDGE EASTERN SPAN  
METROPOLITAN TRANSPORTATION COMMISSION  
July 30, 1997

Finance Recommendation (1)

Recommendation 1: The Commission should support a two year extension of tolls and establish the priority for use of the estimated \$230 million as follows: first, for the additional costs for a cable-supported structure; second, for a portion of the cost of the Transbay Terminal; and third, a bicycle and pedestrian facility on the east span of the bridge should continue to be evaluated through the 30% design stage.

Design Process (2 - 3)

Recommendation 2: Caltrans should select two design teams to develop the two cable-supported alternatives to approximately the 30% design stage so that reliable information as to seismic performance, cost, visual design, and other issues can be obtained before a final recommendation is made.

Recommendation 3: The EDAP and Bay Bridge Design Task Force should remain in place through the 30% design stage of the project to make a final recommendation on bridge design type and thereafter to provide continuous review of final design and engineering details.

Planning Recommendations (4 - 9)

Recommendation 4: The existing eastern span of the Bay Bridge should not be retrofitted, but replaced with a new structure.

Recommendation 5: The new eastern span and existing western span retrofit should be designed to provide post-earthquake "lifeline" service.

Recommendation 6: The new eastern span should have 10 traffic lanes, five in each direction, with two standard 10' shoulders in each direction as part of its base cost.

Recommendation 7: The new eastern span does not require a dedicated bus/carpool lane. Caltrans' design should minimize weaving conflicts between high occupancy and other vehicles at the transition from the dedicated HOV approach lanes to the bridge itself.

Recommendation 8: The new eastern span should be designed in accordance with Caltrans' proposed design loading which will accommodate the possibility of future rail service.

Recommendation 9: The Yerba Buena Island ramps are an inherent part of the bridge and Caltrans has the responsibility to replace the ramps in order to assure safe traffic flow on the bridge.

### Bridge Design Recommendations (10 - 17)

**Recommendation 10:** The new eastern span should be built on the northern adjacent alignment.

**Recommendation 11:** The new eastern span should have a cable-supported main span with a single vertical tower with single or multiple legs in the transverse direction and single or multiple planes of supporting cables.

**Recommendation 12:** The new eastern span bridge should not be double decked. It should have two parallel separated decks on the causeway section and either parallel separated decks or a single deck on the cable-supported span.

**Recommendation 13:** The structural elements of the new eastern span should be visually consistent throughout.

**Recommendation 14:** The causeway section should have long, equal span lengths, although closer span lengths might be necessary just adjacent to the Oakland shore.

**Recommendation 15:** For the causeway section, particular attention should be paid to the design of the supporting pier as it enters the water, including the possibility of submerging the pile cap below water.

**Recommendation 16:** The cable or suspension tower on the eastern span should be no taller than the suspension towers on the existing western span.

**Recommendation 17:** The "diamond" shape for the tower base should not be employed in any cable or suspension tower on the eastern span.

**Bay Bridge Design Selection Schedule  
July 1997 to June 1998 (Revised)**

<b>Organization</b>	<b>Date</b>	<b>Action</b>
MTC	July 30, 1997 (Wednesday)	1. Endorses Engineering and Design Advisory Panel (EDAP) recommendations 2. Selects northern adjacent alignment <sup>1</sup>
Caltrans	August-December 1997	Design teams contract selection process <sup>2</sup>
Caltrans	January 1998	Award of design contract
Caltrans and Design Teams <sup>3</sup>	January-June 1998	1. 30% design of a cable-stay/viaduct bridge 2. 30% design of a self-anchored suspension/viaduct bridge 3. Cost estimates for 1 and 2
EDAP Chair and Vice-Chair <sup>4</sup>	January 26, 1998 (Monday)	Explanation of EDAP recommendations to design teams
Bay Bridge Design Task Force (BBDTF)	February 11, 1998 (Wednesday)	Introduction of design teams; continued discussion of bridge "amenities" with additional monthly meetings as necessary
Caltrans and Design Teams <sup>5</sup>	March 2, 1998 (Monday)	Review of alternative design approaches with EDAP
Caltrans and Design Teams <sup>6</sup>	May 18, 1998 (Monday)	Presentation of designs and cost estimates to EDAP
EDAP	May 29, 1998 (Friday)	Formulate recommendation for BBDTF
BBDTF	June 10, 1998 (Wednesday)	Public Hearing to review design alternatives and EDAP recommendation
Bay Conservation and Development Commission (BCDC)	June 18, 1998 (Thursday)	Hearing and vote on policy issues of concern to BCDC
BBDTF	June 22, 1998 (Monday)	1. Review design, cost and EDAP recommendation 2. Prepare recommendation to MTC
MTC	June 24, 1998 (Wednesday)	Adopt recommendation to Caltrans on bridge design and "amenities", and act on toll surcharge extension

See footnotes on other side.



**Bay Bridge Design Selection Schedule  
July 1997 to June 1998 (Revised)**

**Footnotes**

- <sup>1</sup> Based on Caltrans assurance that a lifeline bridge can be constructed on the northern adjacent alignment, that fewer land use conflicts exist on the northern alignment, that vistas and “gateway to Oakland” are enhanced on the northern alignment and that more flexibility is available to design and build a cable supported span in the northern rather than the southern alignment.
- <sup>2</sup> Based on a design team selection process of five months including a review of consultant selection criteria and scope of work by staff of MTC, BCDC and the Chair and Vice Chair of EDAP. Initial Caltrans estimate of three-month selection process was exceeded due to potential litigation by Caltrans engineers union.
- <sup>3</sup> Based on the following assumptions:
  - a) two design teams will be selected, one to design the best cable stay/viaduct combined structure, the other the best self-anchored suspension/viaduct combination
  - b) all designs will be carried to an approximate 30% level with early reviews by a reconstituted EDAP
  - c) Caltrans is responsible for the “base case” viaduct.
- <sup>4</sup> At this stage EDAP will have been restructured to eliminate members of the selected design teams. The standing of the restructured EDAP as advisor to Caltrans, BCDC and MTC is to be reinforced in this early dialogue between the chair and vice-chair and the design teams. The chair and vice-chair will represent EDAP in the early development of design options by the design teams.
- <sup>5</sup> This is intended to be the milestone where design alternatives are presented by the design team and where there remains sufficient flexibility for substantial revision if EDAP is not satisfied with the design direction.
- <sup>6</sup> The approximate 30% designs together with baseline and signature bridge estimates are to be presented for final review by EDAP.

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*Note: The Engineering and Design Advisory Panel of the Bay Bridge Design Task Force is comprised of representatives from the following organizations (in some instances serving on more than one panel):*

- American Institute of Architects
- American Society of Civil Engineers
- Bay Conservation and Development Commission Design Review Board
- Bay Conservation and Development Commission Engineering Criteria Review Board
- Caltrans Peer Review Panel
- Caltrans San Francisco-Oakland Bay Bridge Review Panel
- Caltrans Seismic Advisory Board
- Structural Engineers Association of Northern California